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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,083	07/26/2001	Marios Gerogiokas	2-3-1-5	7954

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Docket Administrator (Room 3J-219)
Lucent Technologies Inc.
101 Crawfords Corner Road
Holmdel, NJ 07733

EXAMINER	
DANIEL JR, WILLIE J	
ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
09/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/916,083	GEROGIOKAS ET AL.	
	Examiner	Art Unit	
	Willie J. Daniel, Jr.	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to applicant's communication filed on 23 July 2007. **Claims 1-17** are now pending in the present application. This office action is made **Final.**

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 7, and 9-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ward et al.** (hereinafter Ward) (**US 6,104,930**) in view of **Hagen** (**US 6,292,677 B1**) and **Reudink et al.** (hereinafter Reudink) (**US 7,039,441 B1**).

Regarding **claims 1 and 12**, Ward discloses of a beam on demand system comprising:

at least one transceiver (800) which reads on the claimed "radio" (see col. 8, lines 51 - col. 9, line 28; Fig. 8);

a plurality of amplifiers (802) each having an input switchably coupled with the at least one radio (800) by means of a matrix (e.g., switch matrix 801) and with at least one beam former (807), each amplifier (802) having at least one output coupled to at least one antenna in an antenna array (806) (see col. 8, lines 51 - col. 9, line 28; Fig. 8); and

a controller (805) for receiving an output transmission power level signal from each of the plurality of amplifiers (802), wherein the controller (805) generates a control signal to the switch matrix (801) for coupling or uncoupling an amplifier (802) to the at least one radio

(800) to modify at least one angular extent of transmission associated with the radio by modifying the number of antennas couple to said at least one radio (see col. 7, lines 20-40; col. 8, lines 51 - col. 9, line 47; Figs. 8 and 10), where the power of one sector or beam is underutilized the power would transferred to another sector or beam where the frequency and time slots have reached or neared capacity limitations (threshold) in which the equipment floats between sectors or beams. Also, the angular beam width changes according to demand (see col. 9, line 55 - col. 10, line 3; Figs. 7 and 9), where different number of beams can be configured for the radiation coverage of an azimuth (e.g., angle) of a sector, for example, a sector utilizing 4 beams at 30° per beam or 3 beams at 40° per beam (see col. 8, lines 56-60; col. 9, lines 55-64; Figs. 8 and 10). The system switch is capable of connecting any transceiver to the beamformer and antenna array (see col. 7, lines 6-10; col. 8, lines 56-60), where the antenna arrangement is adaptable to serve a plurality sectors.,

the control signal being based on the received output transmission power level of the amplifier and a threshold transmission power (see col. 7, lines 20-40; col. 8, lines 51 - col. 9, line 47; Figs. 8 and 10), where the power of one sector or beam is underutilized the power would transferred to another sector or beam where the frequency and time slots have reached or neared capacity limitations (threshold) in which the equipment floats between sectors or beams. As a note, the system allow for the equipment to floats in order to support the different capacity demands between the sectors, for example, a partially loaded sector can free-up resources to a sector with high traffic.

However, the examiner maintains that the feature coupling and uncoupling an amplifier was well known in the art, as taught by Hagen.

As further support in the same field of endeavor, Hagen discloses the feature coupling (e.g., activated) or uncoupling (deactivated) an amplifier (see col. 2, lines 28-31; col. 9, lines 45-48; col. 1, lines 12-13), where an amplifier can switched between sectors during heavy periods of cellular traffic.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ward and Hagen to have the feature coupling and uncoupling an amplifier, in order to have one or more amplifiers to provide continued uninterrupted operation during times of heavy cellular traffic, as taught by Hagen (see col. 1, lines 41-45). The combination of Ward and Hagen clearly discloses the features as indicated above as evidenced by the fact that one of ordinary skill in the art would clearly recognize. In addition to the above, the examiner maintains that the feature by modifying the number of antennas couple to said at least one radio was well known in the art, as taught by Reudink.

As further support in the same field of endeavor, Reudink discloses the feature by modifying the number of antennas (211-22) couple to said at least one radio (1-4) (see col. 7, lines 64-65; col. 8, lines 49-56; col. 9, lines 3-13; col. 10, lines 11-26; Figs. 2B-3C), where the antennas (211-22) can be coupled or uncoupled to BS radio (1-4) to modify the angle of each sector.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ward, Hagen, and Reudink to have the feature by modifying the number of antennas couple to said at least one radio, in order to

provide a system and method which establishes a wireless system capable of providing high bandwidth data channels, as taught by Reudink (see col. 2, lines 31-36).

Regarding **claims 2 and 16-17**, the combination of Ward and Hagen discloses every limitation claimed, as applied above (see claims 1 and 12), in addition Ward further discloses the beam on demand system of claim 1 where the controller (805) couples or uncouples an amplifier (802) from the at least one radio (800) based on whether the received transmission power of the amplifier is above or below the threshold transmission power (see col. 7, lines 20-40; col. 8, lines 51 - col. 9, line 47; col. 9, line 55 - col. 10, line 53; Figs. 7-10), where the power demand of a sector is allocated to additional transceivers to handle the demand of the sector which is above capacity (threshold) and the transceiver is borrowed from a sector that is below the capacity limit. As a note for further support in field of endeavor, Hagen discloses the feature coupling (e.g., activated) or uncoupling (deactivated) an amplifier (see col. 2, lines 28-31; col. 9, lines 45-48; col. 1, lines 12-13), where an amplifier can switched between sectors during heavy periods of cellular traffic.

Regarding **claim 3**, the combination of Ward and Hagen discloses every limitation claimed, as applied above (see claim 1), in addition Ward further discloses where the amplifier (802) and a corresponding antenna element of the antenna array (806) are coupled or uncoupled to or from the at least one radio (800) (see col. 7, lines 20-40; col. 8, lines 51 - col. 9, line 28; col. 9, line 55 - col. 10, line 53; Figs. 7-10). As a note for further support in field of endeavor, Hagen discloses the feature coupling (e.g., activated) or uncoupling (deactivated) an amplifier (see col. 2, lines 28-31; col. 9, lines 45-48; col. 1, lines 12-13), where an amplifier can switched between sectors during heavy periods of cellular traffic. In

addition to the above, the examiner maintains that the feature to modify said at least one angular extent of transmission associated with the radio was well known in the art, as taught by Reudink.

As further support in the same field of endeavor, Reudink discloses the feature to modify said at least one angular extent of transmission associated with the radio (1-4) (see col. 7, lines 64-65; col. 8, lines 49-56; col. 9, lines 3-13; col. 10, lines 11-26; Figs. 2B-3C), where the antennas (211-22) can be coupled or uncoupled to BS radio (1-4) to modify the angle of each sector.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ward, Hagen, and Reudink to have the feature to modify said at least one angular extent of transmission associated with the radio, in order to provide a system and method which establishes a wireless system capable of providing high bandwidth data channels, as taught by Reudink (see col. 2, lines 31-36).

Regarding **claim 4**, the combination of Ward and Hagen discloses every limitation claimed, as applied above (see claim 1), in addition Ward further discloses where the digital communication signal which reads on the claimed "control signal" is based on the transmission power level of a group of which the amplifier (802) is a member and a threshold transmission power level established for the group (see col. 8, line 51 - col. 9, line 47; col. 10, lines 10-22; Fig. 8), where the communication signal provides transmission power according to the frequency or capacity limit (threshold) in which additional frequencies will be used to carry the overloaded traffic.

Regarding **claims 5 and 13-14**, the combination of Ward, Hagen, and Reudink discloses every limitation claimed, as applied above (see claims 1 and 12), in addition Ward further discloses where the control signal is based on the transmission power level of the amplifier and a threshold transmission power established for the amplifier (see col. 8, line 51 - col. 9, line 47; col. 10, lines 10-22; Figs. 8-9), where the communication signal provides transmission power according to the frequency or capacity limit (threshold) in which additional frequencies will be used to carry the overloaded traffic.

Regarding **claims 7 and 15**, the combination of Ward, Hagen, and Reudink discloses every limitation claimed, as applied above (see claims 1 and 12), in addition Ward further discloses where the at least one radio (800) is switchably coupled with a set of amplifiers from the plurality of amplifiers (802) and an amplifier (802) is either removed from the set or added to the set based on the threshold transmission power of the set and the transmission power of the amplifier to be added or removed (see col. 7, lines 20-40; col. 8, lines 51 -col. 9, line 47), where the transceiver and amplifier will switch from one sector to another sector to provide additional power when the communication signals have reached the capacity limit.,

wherein removing an amplifier from the set decreases the number of antennas couple to said at least one radio thereby decreasing the angular extent of transmission associated with said at least one radio (see col. 7, lines 20-40; col. 8, lines 51 -col. 9, line 47), where the transceiver and amplifier will switch from one sector to another sector to provide additional power when the communication signals have reached the capacity limit, and

wherein adding an amplifier to the set increases the number of antennas coupled to said at least one radio thereby increasing the angular extent of transmission associate with said at

least one radio (see col. 7, lines 20-40; col. 8, lines 51 -col. 9, line 47), where the transceiver and amplifier will switch from one sector to another sector to provide additional power when the communication signals have reached the capacity limit. As a note, Hagen discloses the feature removing (e.g., deactivated) an amplifier, adding (e.g., activated) an amplifier (see col. 2, lines 28-31; col. 9, lines 45-48; col. 1, lines 12-13), where an amplifier can switched between sectors during heavy periods of cellular traffic. As a note, Reudink discloses the feature wherein removing an amplifier from the set decreases the number of antennas couple to said at least one radio thereby decreasing the angular extent of transmission associated with said at least one radio, wherein adding an amplifier to the set increases the number of antennas coupled to said at least one radio thereby increasing the angular extent of transmission associate with said at least one radio (see col. 7, lines 64-65; col. 8, lines 49-56; col. 9, lines 3-13; col. 10, lines 11-26; Figs. 2B-3C), where the antennas (211-22) can be coupled or uncoupled to BS radio (1-4) to modify the angle of each sector in which the adding and removing of an amplifier would be inherent to adjust the sectors.

Regarding **claim 9**, the combination of Ward, Hagen, and Reudink discloses every limitation claimed, as applied above (see claim 1), in addition Ward further discloses where each amplifier (802) output is coupled to an antenna element of the antenna array (806) (col. 8, lines 51 - col. 9, line 28; Figs. 8), where the output from the amplifier passes to the antenna.

Regarding **claim 10**, the combination of Ward, Hagen, and Reudink discloses every limitation claimed, as applied above (see claim 1), in addition Ward further discloses where the switch matrix (801) has N inputs and M outputs where N and M are integers equal to 1 or

greater and M is greater than N (see col. 7, lines 20-40; col. 8, lines 51 - col. 9, line 47; col. 9, line 55 - col. 10, line 53; Figs. 7-10), where the switch matrix has more than one input and output in which the ratio can be adjusted according to capacity demands.

Regarding **claim 11**, the combination of Ward, Hagen, and Reudink discloses every limitation claimed, as applied above (see claim 1), in addition Ward further discloses where the system serves a cell that is part of a wireless communication system (see col. 7, lines 48-50: Figs. 7 and 9).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of **Ward et al.** (hereinafter Ward) (**US 6,104,930**) in view of **Hagen** (**US 6,292,677 B1**) and **Reudink et al.** (hereinafter Reudink) (**US 7,039,441 B1**) as applied to claim 1 above, and further in view of **Feuerstein et al.** (hereinafter Feuerstein) (**US 6,141,565**).

Regarding **claim 6**, the combination of Ward and Hagen discloses every limitation claimed, as applied above (see claim 1), in addition Ward further discloses where the demand of a sector can reach a capacity limitation (threshold) (see col. 7, lines 20-40; col. 8, lines 51 - col. 9, line 47; col. 9, line 55 - col. 10, line 53; Figs. 7-10), where the additional power from amplifiers will be provided to sectors or beams to handle additional traffic with the allocated frequencies. The combination of Ward, Hagen, and Reudink does not specifically disclose the feature the threshold being calculated. However, the examiner maintains that the feature threshold being calculated was well known in the art, as taught by Feuerstein.

In the same field of endeavor, Feuerstein discloses the feature the parameters (threshold) being calculated (see col. 2, line 60 - col. 3, line 1; col. 7, line 56 - col. 8, line 23;

Figs. 1-4), where the controller establishes the threshold for power used by the base station to distribute power for the sectors.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ward, Hagen, Reudink, and Feuerstein to have the feature the threshold being calculated, in order to provide parameters that will optimize and dynamically adjust a network, cell, sector, or beam to handle traffic loading conditions, as taught by Feuerstein (see - col. 4, line 66 - col. 5, line 18; col. 11, lines 13-25).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of **Ward et al.** (hereinafter Ward) (**US 6,104,930**) in view of **Hagen** (**US 6,292,677 B1**) and **Reudink et al.** (hereinafter Reudink) (**US 7,039,441 B1**) as applied to claim 1 above, and further in view of **Lopes et al.** (hereinafter Lopes) (**US 6,453,176 B1**).

Regarding **claim 8**, Ward teaches of having a controller (805) for operating the frequency switch and combiner matrix (801) which distribute communication signals (col. 8, lines 51 - col. 9, line 28; Figs. 8), where the transmitters are capable of outputting a multiplexed digital communication signal through communication channels. The combination of Ward, Hagen, and Reudink does not specifically disclose the feature the controller being a digital signal processor. However, the examiner maintains that the feature the controller being a digital signal processor was well known in the art, as taught by Lopes.

In the same field of endeavor, Lopes discloses the feature the controller being a digital signal processor (see col. 4, lines 44-47), where the controller controls the switches.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ward, Hagen, Reudink, and Lopes to have the feature the controller being a digital signal processor, in order to have beams of used for resource allocation where users can be served by a different beam of each sector within a cell, as taught by Lopes (see col. 8, lines 1-14; Fig. 6).

Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Smith et al.** (hereinafter Smith) (**US 5,021,801**) in view of **Ward et al.** (hereinafter Ward) (**US 6,104,930**) and **Reudink et al.** (hereinafter Reudink) (**US 7,039,441 B1**).

Regarding **claim 12**, Smith discloses a method for automatically allocating system equipment of a communication system (see abstract; Figs. 2-5), the method comprising the steps of:

providing equipment so as to serve various sectors (303) which reads on the claimed "portions" of the communication system, said equipment comprising a plurality of antenna elements and at least one radio (see abstract; Figs. 2-5);

monitoring the equipment to determine capacity demands of the various portions (303) (see col. 3, lines 34-42; Figs. 2 and 3), where the system monitors the capacity to determine when a sector has become overburdened; and

switching equipment between portions (303) of the communication system using a switch matrix (203) to meet the capacity demands of the various portions (303) (see col. 3, lines 34-42; Figs. 2 and 3), where the transmitter from a under used sector would switch to support another overburdened sector to help handle traffic. Smith does not specifically disclose

having the features said equipment comprising a plurality of antenna elements and at least one radio, each portion being characterized by an angular extent of transmission associated with each antenna element; to modify at least one angular extent of the various portions served by the equipment by modifying the number of antenna elements coupled to said at least one radio. However, the examiner maintains that the feature to modify at least one angular extent of the various portions served by the equipment was well known in the art, as taught by Ward.

Ward further discloses the features said equipment comprising a plurality of antenna elements and at least one radio, each portion being characterized by an angular extent of transmission associated with each antenna element (see col. 7, lines 20-40; col. 8, lines 51 - col. 9, line 47; Figs. 8 and 10), where the power of one sector or beam is underutilized the power would transferred to another sector or beam where the frequency and time slots have reached or neared capacity limitations (threshold) in which the equipment floats between sectors or beams. Also, the angular beam width changes according to demand (see col. 9, line 55 - col. 10, line 3; Figs. 7 and 9), where different number of beams can be configured for the radiation coverage of an azimuth (e.g., angle) of a sector, for example, a sector utilizing 4 beams at 30° per beam or 3 beams at 40° per beam (see col. 8, lines 56-60; col. 9, lines 55-64; Figs. 8 and 10). The system switch is capable of connecting any transceiver to the beamformer and antenna array (see col. 7, lines 6-10; col. 8, lines 56-60), where the antenna arrangement is adaptable to serve a plurality sectors.;

to modify at least one angular extent of the various portions served by the equipment by modifying the number of antenna elements coupled to said at least one radio (see col. 7, lines

20-40; col. 8, lines 51 - col. 9, line 47; Figs. 8 and 10), where the power of one sector or beam is underutilized the power would transferred to another sector or beam where the frequency and time slots have reached or neared capacity limitations (threshold) in which the equipment floats between sectors or beams. Also, the angular beam width changes according to demand (see col. 9, line 55 - col. 10, line 3; Figs. 7 and 9), where different number of beams can be configured for the radiation coverage of an azimuth (e.g., angle) of a sector, for example, a sector utilizing 4 beams at 30° per beam or 3 beams at 40° per beam (see col. 8, lines 56-60; col. 9, lines 55-64; Figs. 8 and 10). As a note, the system allow for the equipment to floats in order to support the different capacity demands between the sectors, for example, a partially loaded sector can free-up resources to a sector with high traffic.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Smith and Ward to have the features said equipment comprising a plurality of antenna elements and at least one radio, each portion being characterized by an angular extent of transmission associated with each antenna element; to modify at least one angular extent of the various portions served by the equipment by modifying the number of antenna elements coupled to said at least one radio, in order to overcome the trunking inefficiency experienced in cellular radio systems using a plurality of narrow directional beams, as taught by Ward (see col. 3, lines 34-36). The combination of Ward and Hagen clearly discloses the features as indicated above as evidenced by the fact that one of ordinary skill in the art would clearly recognize. In addition to the above, the examiner maintains that the features said equipment comprising a plurality of antenna elements and at least one radio, each portion being characterized by an angular

extent of transmission associated with each antenna element; by modifying the number of antenna elements coupled to said at least one radio was well known in the art, as taught by Reudink.

As further support in the same field of endeavor, Reudink discloses the features

said equipment comprising a plurality of antenna elements and at least one radio, each portion being characterized by an angular extent of transmission associated with each antenna element (see col. 7, lines 64-65; col. 8, lines 49-56; col. 9, lines 3-13; col. 10, lines 11-26; Figs. 2B-3C), where the antennas (211-22) can be coupled or uncoupled to BS radio (1-4) to modify the angle of each sector;

by modifying the number of antenna elements (211-22) coupled to said at least one radio (1-4) (see col. 7, lines 64-65; col. 8, lines 49-56; col. 9, lines 3-13; col. 10, lines 11-26; Figs. 2B-3C), where the antennas (211-22) can be coupled or uncoupled to BS radio (1-4) to modify the angle of each sector.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Smith, Ward, and Reudink to have the feature said equipment comprising a plurality of antenna elements and at least one radio, each portion being characterized by an angular extent of transmission associated with each antenna element; by modifying the number of antenna elements coupled to said at least one radio, in order to provide a system and method which establishes a wireless system capable of providing high bandwidth data channels, as taught by Reudink (see col. 2, lines 31-36).

Regarding **claim 13**, the combination of Smith, Ward, and Reudink discloses every limitation claimed, as applied above (see claim 12), in addition Smith further discloses the

method of claim 12 where the step of monitoring equipment further comprises establishing capacity thresholds for the various portions of the communication system (see col. 3, lines 34-42; Figs. 2 and 3), where the threshold would be inherent when the overburdened sector reached a capacity limit or threshold for requesting assistance from another transmitter sector.

Regarding **claim 14**, the combination of Smith, Ward, and Reudink discloses every limitation claimed, as applied above (see claim 12), in addition Smith further discloses the method of claim 12 where the step of monitoring equipment further comprises establishing a capacity threshold for each of the provided equipment (see col. 3, lines 34-42; Figs. 2 and 3), where the system monitors the amount of traffic to determine the capacity limitations (threshold) when a sector has become overburdened.

Regarding **claim 15**, the combination of Smith, Ward, and Reudink discloses every limitation claimed, as applied above (see claim 12), in addition Smith further discloses the method of claim 12 where the step of switching equipment between portions (303) of the communication system comprises automatically transferring a provided equipment from one portion (303) to another portion (303) to meet the capacity demands of one or both of the portions (303) (see col. 3, lines 34-42; Figs. 3-5), where the transmitter of one sector is switched from to another sector to assist with handling the traffic in the overburdened the sector.

Regarding **claim 16**, the combination of Smith, Ward, and Reudink discloses every limitation claimed, as applied above (see claim 12), in addition Smith further discloses the

method of claim 12 where the step of switching equipment between portions of the communication system further comprises the steps of:

determining the capacity demand of the portion (303) of the communication system to which equipment is switched (see col. 3, lines 34-42; Figs. 3-5), where the system determines that for the sector a capacity demand and the sector is overburdened; and

switching the equipment to the portion (303) when the capacity demand of the portion (303) is calculated to be below an established capacity threshold even after the equipment has been switched (see col. 3, lines 34-42; Figs. 3-5), where the transmitter is switched in accordance to the overburdened capacity demand to assist with handling traffic.

Regarding **claim 17**, Smith discloses where the equipment being switch are amplifiers (205) coupled to the antenna elements (404) and the amplifiers are switchably coupled with said at least one radio (401) and switch matrix (402) wherein capacity demands are represented by transmission power levels of the amplifiers and the various portions are sectors and/or sub-sectors of a cell of a wireless communication system (see col. 2, line 38 - col. 3, line 6; col. 3, line col. 3, lines 38-47; Figs. 2, 4, and 5), where the equipment is switched to handle traffic between sectors of a cell. Smith fails to disclose having the features elements of an antenna array; the equipment coupled by means of beam former. However, the examiner maintains that having the features elements of an antenna array; the equipment coupled by means of beam former was well known in the art, as taught by Ward.

Ward further discloses of having the features elements of an antenna array (806) (see Fig. 8); the equipment coupled by means of beam former (807) (see Fig. 8), where the equipment is used to handle communication between sectors or beams of a cell.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Smith, Ward, and Reudink to have the features elements of an antenna array; the equipment coupled by means of beam former, in order to modify at least one angular extent of the various portions served by the equipment, in order to overcome the trunking inefficiency experienced in cellular radio systems using a plurality of narrow directional beams, as taught by Ward (see col. 3, lines 34-36).

Response to Arguments

3. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection necessitated by the amended language and/or new limitations.

In response to applicant's arguments, the Examiner respectfully disagrees as the applied reference(s) provide more than adequate support and to further clarify (see the above claims for relevant citations and comments in this section).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Willie J. Daniel, Jr. whose telephone number is (571) 272-7907. The examiner can normally be reached on 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on (571) 272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on

access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WJD,JR/

WJD,JR
18 September 2007

CHARLES N. APPIAH
SUPERVISORY PATENT EXAMINER